

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

### ***Response to Amendment***

2. Applicant's amendment filed on May 19, 2008 has been entered. Claims 19, 32, 38 and 39 have been amended. No claim has been cancelled, or added. Claims 19-42 are still pending in this application, with claims 19 and 37-39 being independent.

### ***Drawings***

3. The drawings were received on May 19, 2008. These drawings are not acceptable.

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the reflective out coupling material having an angular width that varies along a length of the rod with the reflective material distributed in a series of stripes perpendicular to the length of the rod

(as recited in newly added Claim 39), must be shown or the feature(s) canceled from the claims. No new matter should be entered.

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 19-30 rejected under 35 U.S.C. 102(b) as anticipated by MASUTANI et al. (U.S. Pat. 6,488,397).
7. MASUTANI et al. discloses a side-emitting device having:
  - **a light transmitting rod (as recited in claims 19 and 38), Figure 1, reference number 4;**
  - **the rod permitting substantially total internal reflection (as recited in claims 19 and 38), column 2, lines 60-63;**
  - **a reflective outcoupling material (as recited in claims 19 and 38), Figure 2, reference number 5;**
  - **the outcoupling material being affixed to the outer surface of the rod (as recited in claims 19 and 38), column 2, lines 56-59;**
  - **the width of the outcoupling material controlling the angular distribution of light leaving the side of the rod (as recited in claims 19 and 38), column 2, lines 16-22;**
  - **the light source including a plurality of LED (as recited in Claim 20), column 4, lines 1-3;**

- **the plurality of LED including at least a red, a green and a blue LED (as recited in Claim 21)**, column 4, lines 16-18;
- **the red, green and blue LED being mixed to generate white light (as recited in Claim 21)**, as evidenced by column 4, lines 12-18;
- **the red, green and blue LEDs being mixed to generate white light chromaticity (as recited in Claim 22)**, as evidenced by column 4, lines 12-18;
- **the red, green and blue LEDs being mixed to generate dynamic color effects (as recited in Claim 23)**, as evidenced by column 4, lines 12-18;
- **the rod being a flexible rod (as recited in Claim 24)**, column 2 and 3, lines 60-67 and 1-5, respectively;
- **the rod being a rigid rod (as recited in Claim 25)**, column 2 and 3, lines 60-67 and 1-5, respectively;
- **the outcoupling material being a paint (as recited in Claim 26)**, column 3, line 6;
- **the paint being white paint (as recited in Claim 27)**, column 3, lines 6-8;
- **the white paint being distributed in such a way as to control the angular distribution of the light leaving the rod (as recited in Claim 28)**, as evidenced by column 3, lines 38-45;

- **the white paint being distributed in such a way as to ensure uniform light distribution along the length of the rod (as recited in Claim 29)**, as evidenced by column 3, lines 38-45; and
- **an elliptical rod (as recited in Claim 30)**, as seen in Figure 2.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over MASUTANI et al. (U.S. Pat. 6,488,397) in view of HASSLER, Jr. (U.S. Pat. 4,954,931).
9. MASUTANI et al. and HASSLER, Jr. individually disclose, or suggest when combined (see previous section 7), all the limitations of the claims, except the rod being a square rod (as recited in Claim 31).
10. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to shape the rod of the device of MASUTANI et al. as a square rod (as recited in Claim 31), since it has been held by the courts that a change in shape or configuration, without any criticality, is nothing more than one of numerous

shapes that one of ordinary skill in the art will find obvious to provide based on the suitability for the intended final application. See *In re Dailey*, 149 USPQ 47 (CCPA 1976). In this case, one of ordinary skill in the art would have been motivated to select a specific shape as necessitated by the particular requirements of a specific application, as admitted by the applicant (see pages 5 and 6, lines 19-24 and 1-4, respectively).

11. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over MASUTANI et al. (U.S. Pat. 6,488,397) in view of HASSLER, Jr. (U.S. Pat. 4,954,931).

12. MASUTANI et al. and HASSLER, Jr. individually disclose, or suggest when combined (see previous sections 6-9), all the limitations of the claims, except:

- the angular width of the reflective outcoupling material varying along the length of the rod to provide substantially uniform light distribution (as recited in Claim 32);
- the rod being having combination of square and curve edges (as recited in Claim 32); or
- the combination of square and curve edges varying along the length of the rod (as recited in Claim 33).

13. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to vary the angular width of the outcoupling material of

MASUTANI et al. to ensure uniform light distribution along the length of the rod, as per the teachings of HASSLER, Jr. (column 3, lines 36-39).

14. Regarding the rod having combination of square and curve edges (as recited in Claim 32), such combination of edges varying along the length of the rod (as recited in Claim 33), it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to shape the rod of the device of MASUTANI et al. and HASSLER, Jr. as claimed, since it has been held by the courts that a change in shape or configuration, without any criticality, is nothing more than one of numerous shapes that one of ordinary skill in the art will find obvious to provide based on the suitability for the intended final application. See *In re Dailey*, 149 USPQ 47 (CCPA 1976). In this case, one of ordinary skill in the art would have been motivated to select a specific shape as necessitated by the particular requirements of a specific application, as admitted by the applicant (see pages 5 and 6, lines 19-24 and 1-4, respectively).

15. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over MASUTANI et al. (U.S. Pat. 6,488,397) in view of ASHALL (U.S. Pat. 5,390,436).

16. MASUTANI et al. discloses all the limitations of the claims (as detailed in previous section 7), except the outcoupling material including a combination of white paint and fine dots with varying packing density (as recited in Claim 34).

17. ASHALL discloses a side-emitting panel having:

- **a light source (as recited in Claim 19)**, Figure 1, reference number 21;
- **a light transmitting panel**, Figure 1, reference number 10;
- **the panel permitting substantially total internal reflection (as recited in Claim 19)**, as evidenced by Figure 1;
- **an outcoupling material (as recited in Claim 19)**, Figure 1, reference number 13;
- **the outcoupling material being affixed to the outer surface of the panel (as recited in Claim 19)**, column 3, lines 15-17;
- **the outcoupling material including a combination of white paint and fine dots (as recited in Claim 34)**, column 3, lines 56-59; and
- **the combination of white paint and fine dots having a varying packing density (as recited in Claim 34)**, column 3, lines 59 and 60.

18. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to include a combination of white paint and fine dots with varying packing density (as recited in Claim 34) as the outcoupling material of the patented device of MASUTANI et al., to be able to enhance uniform light emission from the side of the rod, as per the teachings of ASHALL.



19. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over MASUTANI et al. (U.S. Pat. 6,488,397) in view of REID et al. (U.S. Pat. 6,267,492).

20. MASUTANI et al. discloses all the limitations of the claims (as detailed in previous section 7), except a mirror located at the end of the rod away from the light source (as recited in Claim 35), such mirror reflecting light that travels the entire length of the rod (as recited in Claim 36).

21. REID et al. discloses a side-emitting device having:

- **a light source (as recited in Claim 19)**, Figure 1, reference number 10;
- **a light transmitting rod (as recited in Claim 19)**, Figure 1, reference number 20;
- **the rod permitting substantially total internal reflection (as recited in Claim 19)**, column 5, lines 36-43;
- **an outcoupling material (as recited in Claim 19)**, Figure 3B, reference number 226;
- **the outcoupling material being affixed to the outer surface of the rod (as recited in Claim 19)**, column 6, lines 33-36; and
- **a mirror (as recited in Claim 35)**, Figure 6A, reference number 626;

- **the mirror being located at the end of the rod away from the light source (as recited in Claim 35)**, column 9, lines 50 and 51;  
and
- **the mirror reflecting light that travels the entire length of the rod (as recited in Claim 36)**, column 9, lines 50-54.

22. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to include the end mirror of REID et al. in the rod of the device of MASUTANI et al. and HASSLER, Jr., to be able to reflect back along the rod light that traveled the entire length of the rod, as per the teachings of REID et al.

23. Claims 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over MASUTANI et al. (U.S. Pat. 6,488,397) in view of HASSLER, Jr. (U.S. Pat. 4,954,931).

24. MASUTANI et al. discloses a side-emitting device having:

- **a light transmitting rod (as recited in Claim 38)**, Figure 1, reference number 4;
- **the rod permitting substantially total internal reflection (as recited in Claim 38)**, column 2, lines 60-63;
- **a reflective outcoupling material (as recited in Claim 38)**, Figure 2, reference number 5;

- **the outcoupling material being affixed to the outer surface of the rod (as recited in Claim 38)**, column 2, lines 56-59; and
- **the width of the outcoupling material controlling the angular distribution of light leaving the side of the rod (as recited in Claim 38)**, column 2, lines 16-22.

25. MASUTANI et al. discloses all the limitations of the claims, except the angular width of the outcoupling material varying along the length of the rod to provide substantially uniform light distribution (as recited in Claim 38).

26. HASSLER, Jr. discloses a side-illuminating device having:

- **a light source (as recited in Claim 38)**, Figure 3, reference numbers 17 and 19;
- **a light transmitting rod (as recited in Claim 38)**, Figure 1, reference number 13;
- **the rod permitting substantially total internal reflection (as recited in Claim 38)**, as evidenced by column 2, lines 64-69;
- **an outcoupling portion (as recited in Claim 38)**, Figure 3, reference number 59;
- **the outcoupling portion being formed on the outer surface of the rod (as recited in Claim 38)**, column 3, lines 16-18;
- **the width of the outcoupling portion controlling the angular distribution of light leaving the side of the rod (as recited in Claim 38)**, inherent;

- **the width of the outcoupling portion being determined to ensure uniform light distribution along the length of the rod (as recited in Claim 38),** column 3, lines 36-39.

27. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to adjust the angular width of the outcoupling material of MASUTANI et al. to ensure uniform light distribution along the length of the rod, as per the teachings of HASSLER, Jr. (column 3, lines 36-39).

28. Method Claim 37 is suggested by the combined teachings of MASUTANI et al. and HASSLER, Jr. (as detailed in previous sections 24-27).

29. Claims 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over MASUTANI et al. (U.S. Pat. 6,488,397) in view of YOKOYAMA (U.S. Pat. 5,134,549).

30. MASUTANI et al. discloses a side-emitting device having:

- **a light source (as recited in Claim 39),** Figure 1, reference number 3;
- **a light transmitting rod (as recited in Claim 39),** Figure 1, reference number 4;
- **the rod permitting substantially total internal reflection (as recited in Claim 39),** column 2, lines 60-63;

- **a reflective outcoupling material (as recited in Claim 39), Figure 2, reference number 5;**
- **the outcoupling material being affixed to the outer surface of the rod (as recited in Claim 39), column 2, lines 56-59; and**
- **the outcoupling material controlling the angular distribution of light leaving the side of the rod (as recited in Claim 39), column 2, lines 16-22; and**
- **he outcoupling material including fine dots with varying packing density (as recited in Claim 42), column 3, lines 6-22.**

31. MASUTANI et al. discloses all the limitations of the claims, except:

- the angular width of the reflective outcoupling material varying along the length of the rod (as recited in Claim 39);
- the reflective outcoupling material being distributed in a series of stripes perpendicular to the length of the rod (as recited in Claim 39);
- at least one of the width of the spacing between the stripes or the width of the stripes varying along the length of the rod (as recited in Claim 40); or
- the width of the spacing between the stripes varying along the length of the rod (as recited in Claim 41).

32. YOKOYAMA discloses a side-emitting device having:

- **a light source (as recited in Claim 39)**, Figure 11, reference number 1;
- **a light transmitting member (as recited in Claim 39)**, Figure 11, reference number 2;
- **the member permitting substantially total internal reflection (as recited in Claim 39)**, column 1, lines 20-25;
- **a reflective outcoupling material (as recited in Claim 39)**, Figure 11, reference number 6;
- **the outcoupling material being affixed to the outer surface of the member (as recited in Claim 39)**, column 3, lines 63-68;
- **the outcoupling material controlling the angular distribution of light leaving the side of the member (as recited in Claim 39)**, column 4, lines 5-10;
- **the angular width of the reflective outcoupling material varying along the length of the rod (as recited in Claim 39)**, as seen in Figure 19;
- **the reflective outcoupling material being distributed in a series of stripes perpendicular to the length of the rod (as recited in Claim 39)**, as seen in Figure 19;
- **at least one of the width of the spacing between the stripes or the width of the stripes varying along the length of the rod (as recited in Claim 40)**, as seen in figures 11 and 19; and

- **the width of the spacing between the stripes varying along the length of the rod (as recited in Claim 41)**, as seen in figures 11 and 19.

33. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to form the outcoupling material of MASUTANI et al. as the variable density stripes of YOKOYAMA, to ensure uniform light distribution along the length of the rod, as per the teachings of YOKOYAMA.

#### ***Response to Arguments***

34. Applicant's arguments filed May 19, 2008 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negrón whose telephone number is (571) 272-2376. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee, can be reached on (571) 272-7044. The facsimile machine number for the Art Group is (571) 273-8300.

36. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, go to <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) toll-free at 866-217-9197.

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